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Abstract

In a vapor drying system, solvents such as isopropyl alcohol (IPA) are boiled and condensed to provide a means of removing water and other contamination from process parts loaded into the equipment. The parts enter the apparatus via an automated lift assembly. Upon entering the vapor zone, solvent condenses on the parts and fixtures due to a temperature differential, displacing the contaminants. This condensate/contaminant waste stream gravity drains to a buffer tank below via a sloped, temperature-controlled drip tray. After vapor condensation on the parts ceases, drying is accomplished using superheated vapors formed in a stabilized zone generated by one or more offset boil sumps and separate vapor heat exchangers. Any liquid solvent remaining on the parts is flash-dried in the vapor zone, so that parts emerge clean and dry. The invention incorporates a computer-implemented PLC to control process parameters, cover mechanism, transport mechanism, safety features during operating, idle and standby conditions.